

AEM report from E906

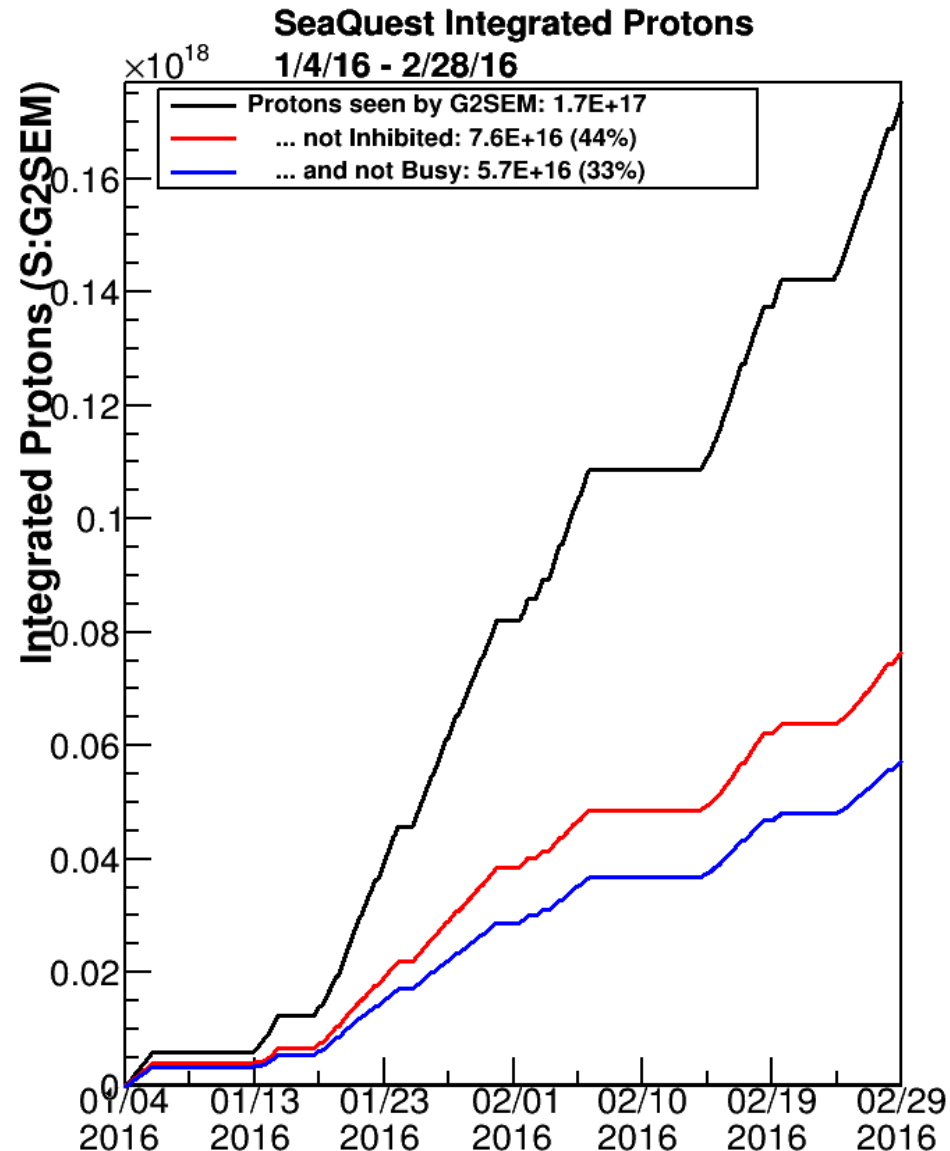
Andrew Chen

U. of Michigan

For the E906 collaboration

Beam taken

- Have been taking data smoothly until last night.
- Beam intensity monitor based on QIE sum has been dropping more than in the past.
 - Have replaced mirror and PMT. Some effect seen but not quite as we hope for.
 - Neutron Density filter next.



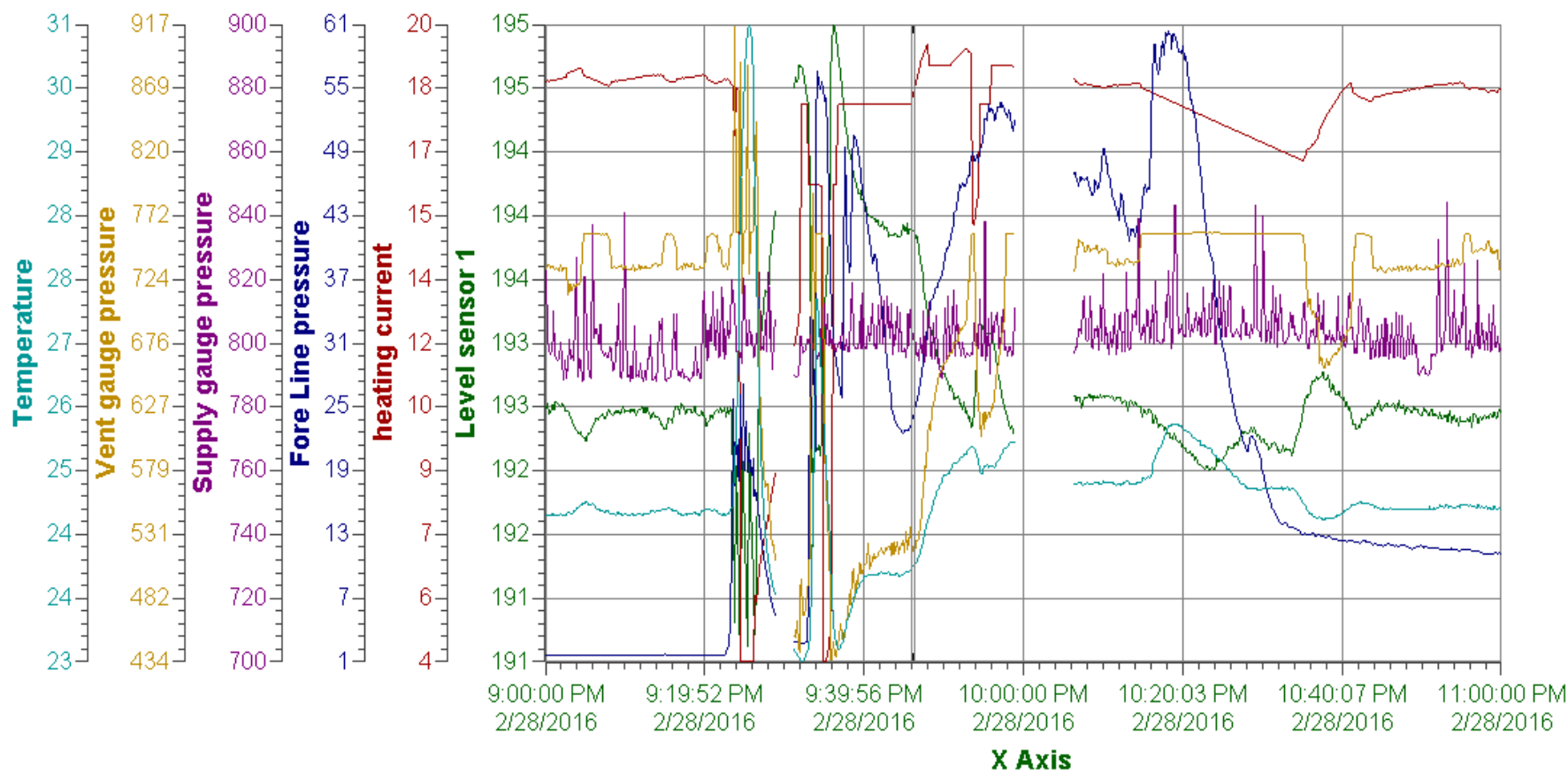
What happened before last night?

- Survey was done on all detectors.
- Implement new trigger route set to reduce random events and add in new routes for Dark Matter search, as well as a special route for 120 GeV proton passing through.
- DAQ problem in early Sat. morning. Lost data taking time for 6 hours or so.
 - A CPU board in the Trigger Supervisor create needs replacement. First replacement with a another MVME 6100 didn't work. Had to revert back to older MVME 5500, which needs reconfiguration, to get the system back online.

What happened last night?

- At around 9:24 PM several alarms went off on target, and chamber.
- The St. 1 chamber is broken due to a broken wire.
- The LD2 target showed strange behavior,
 - Yes, LD2 was the one in the beam!
 - LH2 history shows normal as usual.

LD2 status in this incidence



| Value | Pen Name | Description |
|-------|-------------------------|-------------------------|
| 194 | E906_S1.D_TE_LVL1.F_CV | E906_S1.D_TE_LVL1.F_CV |
| 18 | E906_S1.D_PID_AMP.F_CV | E906_S1.D_PID_AMP.F_CV |
| 24 | E906_S1.D_PT_FPVAC.F_CV | E906_S1.D_PT_FPVAC.F_CV |
| 801 | E906_S1.D_PT_SUP.F_CV | E906_S1.D_PT_SUP.F_CV |
| 521 | E906_S1.D_PT_VENT.F_CV | E906_S1.D_PT_VENT.F_CV |
| 24 | E906_S1.D_TE_COND1.F_CV | E906_S1.D_TE_COND1.F_CV |

9:00:00 PM 2/28/2016



11:00:00 PM 2/28/2016

LD2 status summary

- Pressure of vent gauge rised up to more than 900 torr and fluctuates. Then dropped down to 430 torr!
- The heating current changed spontaneously to compensate the change in pressure.
- The Fore Line vacuum pressure rised from 1.5 to ~20 micron in the first place. It then rised to 60 micron at one point.
- Target expert got called to save the LD2 target!

Plan to fix the problem

- St. 1 chamber needs to be brought out for broken wire fixing.
- In the mean time the old St. 1 chamber is going back in.
 - Need to extend the I beam, which will hold both chambers.
 - New St. 1 chamber will be read out only the channels that cover the area where the old one doesn't.
 - Minor increasing in read out channels.
 - In case of new chamber being broken again, we can still take data when the new chamber is exchanging gas out and in. Of course this reduces the acceptance to that of old chamber alone.

Time scale

- The I beam that holds the chamber(s) will be extended “quickly”. Few days?
- After the flammable gas is exchanged out, need one day to fix the wire in the new chamber.
- Put the old and new chamber in place and start flowing gas for both chambers. This takes 3 to 4 days, dominated by the new chamber.
- At least a week or more is expected to get back in data taking.